



Volunteer Lake Assessment Program Individual Lake Reports

HERMIT LAKE, SANBORNTON, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	3,718	Max. Depth (m):	15.2	Flushing Rate (yr ⁻¹)	4.2	Year	Trophic class	KNOWN EXOTIC SPECIES
Surface Area (Ac.):	176	Mean Depth (m):	2.5	P Retention Coef:	0.58	1980	MESOTROPHIC	
Shore Length (m):	8,700	Volume (m ³):	1,756,000	Elevation (ft):	624	2003	EUTROPHIC	

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

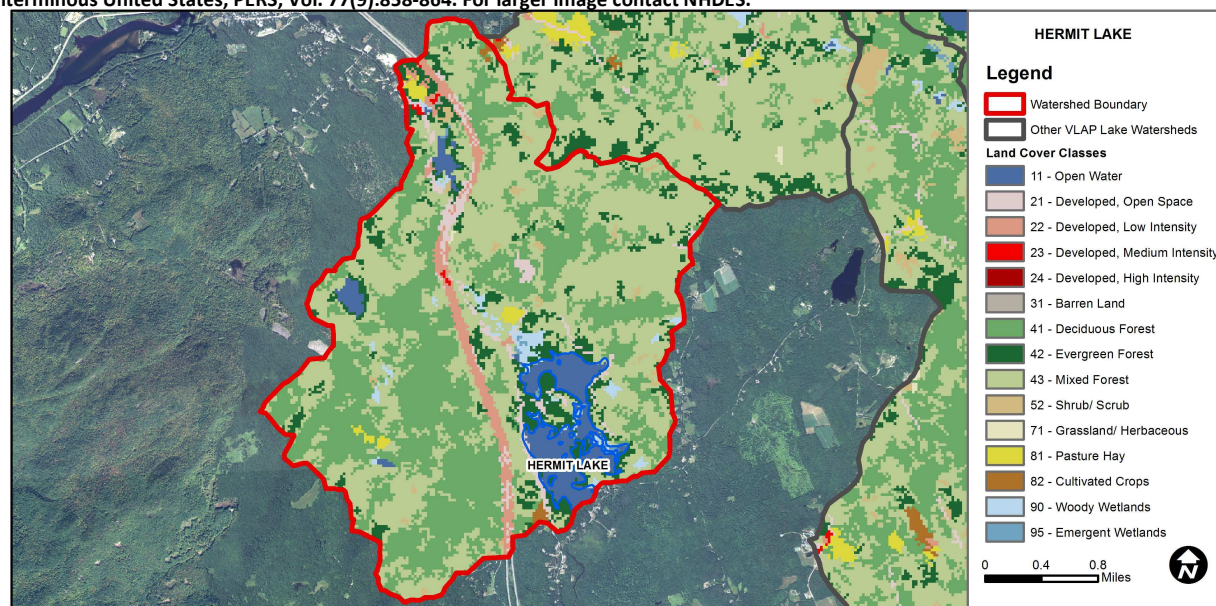
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Very Good	>5 samples and median is < 1/2 threshold.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	D.O. (mg/L)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	D.O. (% sat)	Encouraging	< 10 samples and no exceedance of criteria. More data needed.
	Chlorophyll-a	Very Good	>5 samples and median is < 1/2 threshold.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geometric mean. No single sample exceedances. More data needed.
	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	At least 10 samples with 0 exceedances of criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

HERMIT LAKE - TOWN BEACH	E. coli	Bad	>=1 exceedance(s) of geometric mean criterion and/or >=2 exceedances of single sample criterion, with 1 or more >2X criteria.
HERMIT LAKE - TOWN BEACH	Cyanobacteria	Slightly Bad	Cyanobacteria bloom(s).

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.32	Barren Land	0.03	Grassland/Herbaceous	0.03
Developed-Open Space	2.8	Deciduous Forest	33.81	Pasture Hay	0.64
Developed-Low Intensity	3.02	Evergreen Forest	8.39	Cultivated Crops	0.26
Developed-Medium Intensity	0.14	Mixed Forest	42.92	Woody Wetlands	1.56
Developed-High Intensity	0	Shrub-Scrub	0.89	Emergent Wetlands	0.2



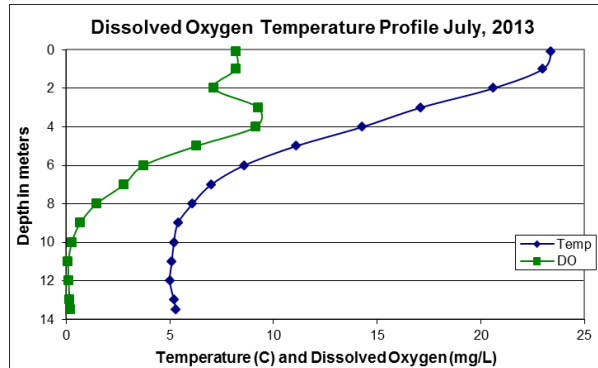
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

HERMIT LAKE, SANBORNTON, NH

2013 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- CHLOROPHYLL-A:** Chlorophyll levels increased from 2012 and were slightly greater than the state median. Historical trend analysis indicates highly variable chlorophyll levels between years.
- CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and chloride were slightly greater than the state median except for Harvey Brook and Shannons Inlet which were lower than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. We hope to see this continue!
- TOTAL PHOSPHORUS:** Deep spot and tributary phosphorus levels were low. Historical trend analysis indicates relatively stable epilimnetic phosphorus with moderate variability between years.
- TRANSPARENCY:** Transparency was lower in 2013 and slightly worse than the state median, potentially due to the increase in algal growth and storm events prior to sampling. Historical trend analysis indicates highly variable transparency between years.
- TURBIDITY:** Deep spot and tributary turbidities were low which is good considering a significant rain event occurred prior to and during sampling.
- pH:** pH levels were generally less than the desirable range 6.5 – 8.0 units.
- RECOMMENDED ACTIONS:** A significant rain event occurred before and during sampling and data indicates that water quality remained good during this period. That is a good sign as stormwater runoff typically transports nutrients (phosphorus), sediment and other pollutants to nearby waterbodies. Increase monitoring frequency to three times per summer, typically June, July and August, to better assess seasonal and historical trends and decrease variability.



Station	Table 1. 2013 Average Water Quality Data for HERMIT LAKE							
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m	Turb. ntu	pH
Dam Outlet				89.0	5	NVS	0.93	6.54
Epilimnion	4.70	5.60	27	107.0	5	3.05	0.87	6.3
Metalimnion				106.0	3		0.63	6.03
Hypolimnion				163.0	10		1.36	5.71
Harvey Brook				21.0	3		0.15	6.33
Jackson Inlet				101.0	3		0.64	6.29
Rt 132 Inlet			20	92.0	3		0.94	6.42
Shannons Inlet			3	30.5	10		0.65	6.35

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m³
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
pH	Stable	Trend not significant; data moderately variable.	Chlorophyll-a	Stable	Trend not significant; data highly variable.
Conductivity	Improving	Data significantly decreasing.	Transparency	Stable	Trend not significant; data highly variable.
			Phosphorus (epilimnion)	Stable	Trend not significant; data moderately variable.

